

WHAT IS CLAIMED IS:

1. A data recording controller for recording data to a disc medium to which a disc address corresponding to a predetermined data format is recorded beforehand, in compliance with the data format, together with a data address and recording additional data from an end of data that has already been written, the data recording controller comprising:

10 a detection circuit for detecting a difference between the data address and the disc address obtained by reading the written data; and

15 a timing control circuit for determining a timing for initiating the recording of the additional data based on the difference.

2. The data recording controller according to claim 1, wherein the data recording controller is connected to a control unit for generating a recording initiation address in which the difference is compensated for and providing the recording initiation address to the timing control circuit, and the timing control circuit generates a start trigger signal in accordance with the recording initiation address.

25 3. The data recording controller according to claim 2, wherein the data recording controller is for use with a laser beam, the data recording controller further comprising:

30 a modulation circuit activated in response to the start trigger signal to perform a predetermined conversion process on the additional data and generate modulated data; and

a write strategy circuit activated in response to the start trigger signal and generating a recording pulse in

accordance with the modulated data, wherein the recording pulse is used to generate the laser beam for recording data in which the laser beam is emitted to the disc medium.

5 4. The data recording controller according to claim 3, wherein the data recording controller is for use with a laser beam for reading and recording data, and the timing control circuit temporarily suspends the operations of the modulation circuit and the write strategy circuit until the
10 laser beam for reading the written data reaches the end of the written data and restarts the operations of the modulation circuit and the write strategy circuit at a timing in which the laser beam reaches a position designated by the recording initiation address.

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5. A data recording controller for recording data to a disc medium to which a disc address corresponding to a predetermined data format is recorded beforehand, in compliance with the data format, together with a data
20 address and recording additional data from an end of data that has already been written, the data recording controller comprising:

25 a first counter for performing counting in synchronism with reproduction of the written data;

25 a second counter for performing counting in synchronism with reproduction of the disc address; and

30 a detection circuit connected to the first and second counters, wherein the detection circuit compares count values of the two counters to detect a difference between the data address and the disc address obtained by reading the written data; and

30 a timing control circuit for determining a timing for initiating the recording of the additional data based on the

difference so that the additional data is added from the end of the written data.

6. The data recording controller of claim 5, wherein
5 the data format includes a frame having a predetermined number of bits, a sector having a predetermined number of the frames, and a block having a predetermined number of the sectors, and a synchronization signal is applied to the written data and the disc address for every unit of one of
10 the frames, the sectors, and the blocks, the first counter counting the synchronization signal of the written data, and the second counter counting the synchronization signal of the second counter.

15 7. The data recording controller according to claim 5, wherein the data format includes a frame having a predetermined number of bits, a sector having a predetermined number of the frames, and a block having a predetermined number of the sectors, the first counter
20 counting the written data in predetermined bit units, and the second counter counting the disc address in predetermined bit units.

8. The data recording controller according to claim 5, wherein the data recording controller is for use with a laser beam for reading and recording data and for connection to a control unit for generating a recording initiation address in which the difference is compensated for and providing the recording initiation address to the timing control circuit, the timing control circuit generating a start trigger signal in accordance with the recording initiation address, the data recording controller further comprising:
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10 a modulation circuit performing a predetermined conversion process on the additional data to generate modulated data; and

5 a write strategy circuit for generating a recording pulse in accordance with the modulated data, wherein the recording pulse is used to generate the laser beam for recording data by emission onto the disc medium, the modulation circuit and the write strategy circuit being activated in response to the start trigger signal.

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9. The data recording controller according to claim 8, wherein the timing control circuit temporarily suspends the operations of the modulation circuit and the write strategy circuit until the laser beam for reading the written data reaches the end of the written data and restarts the operations of the modulation circuit and the write strategy circuit at a timing in which the laser beam reaches a position designated by the recording initiation address so that the laser beam for recording data is output.

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20 10. A device for recording data in compliance with a predetermined format to a disc medium and a disc address on the disc medium indicating a position of written data on the disc medium, the device comprising:

25 an optical head for generating a laser beam, a first read signal related to the written data, and a second read signal related to the disc address by emission of the laser beam for reading data from the disc medium;

30 a data recording controller connected to the optical head to control the recording of data, including the recording of additional data continuously from an end of the written data, the data recording controller including:

a detection circuit for detecting a difference

between a data format address of the written data and the disc address from the first read signal and the second read signal; and

5 a timing control circuit for controlling a timing for initiating the recording of the additional data based on the difference detected by the detection circuit so that the additional data is added from the end of the written data.

10 11. The device according to claim 10, further comprising a control unit connected to the detection circuit and the timing control circuit to generate a recording initiation disc address based on the difference and provide the timing control circuit with the recording initiation disc address.

15 12. The device according to claim 11, wherein the timing control circuit generates a start trigger signal from the recording initiation disc address and the second read signal, the data recording controller further including:

20 a modulation circuit for performing a predetermined conversion process on the additional data to generate modulated data; and

25 a write strategy circuit for generating a recording pulse in accordance with the modulated data, wherein the recording pulse is used to generate the laser beam for recording data by emission onto the disc medium, the modulation circuit and the write strategy circuit being activated in response to the start trigger signal.

30 13. The device according to claim 12, wherein the timing control circuit temporarily suspends the operations of the modulation circuit and the write strategy circuit

until the laser beam for reading data reaches the end of the written data and restarts the operations of the modulation circuit and the write strategy circuit at a timing in which the laser beam for reading data reaches a position
5 designated by the recording initiation address so that the laser beam for recording data is output.

14. The device according to claim 13, wherein the control unit provides the modulation circuit with a memory address of the additional data.
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